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10/057,206

01/25/2002

Robert J. Small

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MORGAN LEWIS & BOCKIUS LLP
1111 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20004

EXAMINER

MARCHESCHI, MICHAEL A

ART UNIT

PAPER NUMBER

1793

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--|-------------------------------------|--|
| Office Action Summary | Application No. 10/057,206 | Applicant(s) SMALL ET AL. | |
| | Examiner Michael A. Marcheschi | Art Unit 1793 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 77-101, 104-106, 108-111, 118, 130-138 and 140 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 77-101, 104-106, 108-111, 118, 130-138 and 140 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

After further review of Wang et al. (184) and a further search, the examiner concludes that the indication of at one of the claimed materials, defined as suspending agents, was premature and the following action is thus applied.

It is also to be noted that applicants amendments creates numerous new indefinite rejections and fully changed the scope of the claims (now the claimed compositions are not required to be in combination with a noble metal, as previously claimed).

However, this action is being made non final in view of the examiners premature indication of allowable subject matter which is now rejectable.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 77-101, 104-106, 108-111, 118, 130-138 and 140 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for ammonium polymethacrylate, does not reasonably provide enablement for polymethacrylate, in general. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Claims 77, 94 and 118 and the corresponding dependent claims recite polymethacrylate. This encompasses any polymethacrylate. However, the specification only teaches the use of *ammonium* polymethacrylate. Such a limited disclosure does not support the breadth of the instant claims.

Claims 77-93, 118, 130-138 and 140 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 77 and 118 define “ammonium” in the selection of the suspending agents, however, this material has not been defined in the specification as originally filed.

Claims 77-101, 104-106, 108-111, 118, 130-138 and 140 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 77 and 118 are indefinite as to the limitation “...silicate ammonium and polyacrylate” because the examiner is unclear as to the metes and bounds of the claims, as written. Should this be “...silicate, and ammonium polymethacrylate”?

Claims 77, 94 and 118 are also indefinite as to the limitation “aluminum oxide-C” because this is trade name (see section 0126 of Konno et al. '183) and the use of a trademark or trade name in a claim renders the claim indefinite. See *Ex parte Davis* 80 USPQ 448 (PO

BdPatApp 1949); Ex parte Kattwinkel 12 USPQ 11 (PO BdPatApp 1931) ; and Ex parte Simpson 218 USPQ 1020.

Claim 86-87 are indefinite because claim 77 already defines a suspension agent and the suspension agents defined in claim 87 are outside the scope of claim 77.

Claim 90 and 91 are indefinite because they depend on claim 86, which is indefinite.

Claim 106 is indefinite because it depends on a canceled claim.

The other claims are indefinite because they depend in indefinite claims.

Claims 77-82, 86-101, 104-106, 108-111, 118, 130-136, 138 and 140 are rejected under 35 U.S.C. 103(a) as obvious over Wang et al. (184) alone or in view of Akahori et al. (434)

Wang et al. (184) in the abstract and sections [0014], [0016], [0017], [0024], [0033] and [0034], a polishing composition for polishing a substrate comprising a noble metal layer and a dielectric layer (i.e. composition in contact with a noble metal substrate), said composition comprises an abrasive (alumina) and periodates and acids thereof (i.e. this is periodic acid). It is shown that a combination of abrasives can be used thus reading on the claimed suspension agent (i.e. another abrasive). The amounts for the abrasive and periodic acid are defined. Other components can be added (i.e. organic acid (succinic acid), surfactant, pH adjustor (sodium hydroxide, etc.), etc.). Section [0028] shows that the pH of one type of the system is 6.5. The examples provide other pH values.

Wang et al. teaches amounts for the periodic acid and it is the examiners position that when said amounts are calculated in terms of moles/kg, said amounts will encompass the claimed amounts. If applicants wish to argue the claimed amounts, burden is upon applicants to

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show the contrary to the above statement (i.e. show that the reference range is not within the range of the claimed amounts). This reference also defines amounts for the components and it is the examiners position that the combined amounts defined by the reference will render a substrate substantially planar, thus making this limitation obvious. With respect to the suspending agents, Wang et al. teaches that fumed alumina can be used in combination with another abrasive, and since "aluminum oxide C" is a trade name for fumed alumina, the claimed suspension agent is fumed alumina and the reference clearly teaches this component. Although it is not defined as being a suspending agent, no distinction is seen to exist because it is still used in the composition, irrespective of what it is called. In addition, it is prima facie obvious to combine two or more materials disclosed by the prior art to form a third material (combination of abrasive (i.e. fumed alumina with any other known abrasive) that is to be used for the same purpose. In re Kerkhoven 205 USPQ 1069. Although not needed in this rejection, it is also to be noted that Wang et al. teaches in section 0035 that a dispersant can be added to the composition and ammonium polymethacrylate is a known polymer dispersant for use in polishing compositions, as is clearly shown by Akahori et al. in column 4, lines 15-21, thus its use in the composition according to Wang et al. is motivated by the fact that Wang et al. teaches that a dispersant can be present and this would imply any known conventional dispersant. Although it is not defined as being a suspending agent, no distinction is seen to exist because it is still used in the composition, irrespective of what it is called.

In view of this, no patentable distinction is seen to exist between the reference composition and the claimed composition in the absence of any evidence showing the contrary. With respect to the characteristics (i.e. polishing rate, selectivity and other characteristics), since

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the composition is the same and is used to polish the same substrate, these characteristics are expected and therefore obvious because the same polishing composition is expected to provide the same polishing characteristics to a substrate upon polishing absent clear evidence showing the contrary. With respect to the types of feature, the claims are now rewritten in a manner that these limitations are the intended use of the composition and intended use does add added patentability to the claims. In view of this, the limitations of claims 77-82, 86-101, 104-106, 108-111, 118, 130-134, 138 and 140 are met.

With respect to claims 135-136, the primary reference teaches that alumina can be used and it is the examiners position that this reads on any alumina form absent critical evidence.

With respect to claims 118, 130-136, 138 and 140, the combination as defined above teaches the claimed invention. Although “consisting essentially of” is used and Wang et al. might use additional components, no distinction is seen to exist because it is the examiners position that these components will not materially effect the basic and novel properties of the composition and thus are still within the scope of the claims. Burden is upon applicants to show that this additional component will materially affect the basic and novel properties of the claimed composition.

Assuming arguendo about the limitations of claims 110 and 131, the following rejection would apply.

Claims 110 and 131 are rejected under 35 U.S.C. 103(a) as obvious over Wang et al. (184) alone or in view of Akahori et al. (434) as applied to claims 94 and 118 above and further in view of Beitel et al. (208).

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Beitel et al. teaches in section [0013] that substrates based on an iridium oxide layer (and a silicon dioxide layer (dielectric)) are known to be polished with an abrasive polishing slurry.

With respect to the specific substrate (iridium oxide), Wang et al. implies that the substrate can be any suitable substrate. This suggests to the skilled artisan that any known substrate can be polished and thus the polishing of a substrate comprising iridium oxide would have been obvious to the skilled artisan because this type of substrate is known to be polished with an abrasive polishing slurry, as shown by Beitel et al. The motivation for this combination is defined by Wang et al. in the implied statement that states any suitable substrate can be polished.

Claim 137 is rejected under 35 U.S.C. 103(a) as obvious over Wang et al. (184) alone or in view of Akahori et al. (434), as applied to claim 118 above and further in view of Lack et al. (264).

Lack et al. teaches in section [0052] that a mixture of alpha alumina and gamma alumina is a known abrasive for polishing compositions.

With respect to claim 137, the use of a mixture of alpha alumina and gamma alumina is obvious to the skilled artisan because this mixture is notoriously known to be used as the abrasive in polishing composition, as shown by Lack et al. and Wang et al. implies that any suitable abrasive known in the art may be used. Although Lack et al. is not directed to polishing noble metals, the concept of using two different alumina forms is known, irrespective of what it is used to polish.

Claims 83-85 are rejected under 35 U.S.C. 103(a) as obvious over Wang et al. (184) alone or in view of Akahori et al. (434), as applied to claims 77 above and further in view of Sachan et al. (027).

Sachan et al. teaches in claim 1 and section [0025] that polishing compositions for polishing noble metals are known to have a pH of 1.5-5.

Although Wang et al. does not literally define the pH for the broad composition (i.e. any and all compositions for polishing noble metals within the scope of the reference), the use of the claimed pH in the composition of Wang et al. would have been obvious because in polishing compositions, the pH of the composition is dependent on the substrate to be polished, and as is shown by Sachan et al., when the substrate to be polished is a noble metal, the pH of the composition is defined as 1.5-5. In view of this, one skilled in the art would have appreciated the pH values required for polishing a noble metals according to Sachan et al.

Applicant's arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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/Michael A Marcheschi/
Primary Examiner, Art Unit 1793